Connecticut Department of Environmental Protection

citizens' bulletin

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Coal For Connecticut?

On April 25, 1977, the Federal Energy Administration (FEA) issued notices of its intent to issue a prohibition order to eight power plants in Connecticut operated by Northeast Utilities and United Illuminating. The plants subject to the proposed orders are located in Middletown, Norwalk and Bridgeport. If issued, the orders would prohibit the plants from burning natural gas or petroleum products as their primary energy source and would effectively require that the eight plants convert their facilities to permit the burning of coal as the primary energy source.

At a regional public hearing held at the Hartford College for Women on May 12, 1977, both Governor Ella Grasso and DEP Commissioner Stanley Pac endorsed the fuel conservation and energy independence goals of the proposed conversions but raised serious questions concerning the practicality and effectiveness of the plan.

In remarks delivered at that hearing Governor Grasso said, "I strongly support the national goals of conservation and energy independence and both the concept and program outlined recently by President Carter. The goal of energy independence is a positive and necessary goal. Over the long haul, we believe that conversion to coal in some areas is a necessary part of implementing that goal...

"Our Connecticut Energy Advisory Board has recommended that our state consider increased utilization of coal when necessary environmental control equipment has reached the point where it is environmentally and economically justifiable.

"We believe, however, that the proposed orders would require too much too soon of those who have already made enormous strides in reducing oil consumption."

Governor Grasso pointed out that Connecticut has already made a significant commitment to the use of nuclear power for the generation of electricity, with 51% of the State's electricity coming from that source in 1976. The capital expenditures connected with the coal conversion would place an additional burden on Connecticut consumers already bearing the capital costs of nuclear plant construction.

Commissioner Pac, in his statement at the FEA hearing, said, "Through the years Connecticut has emphasized progressive approaches to the solution of environmental problems. In 1972, Connecticut was faced with major decisions on the disposal of solid waste. Rather than moving backward and emphasizing the "burn and bury" approach, this State moved ahead with a precedent-setting resource recovery program. The present approach to the energy problem could be analogous to a move at that time to increased use of incinerators for solid waste disposal.

(Cont. on next page.)

In this issue

"There are alternative solutions to the direct burning of coal which could alleviate the environmental problems. Coal gasification and liquefaction can be carried out on a scale that will allow substitution for scarce petroleum resources. Also, a near-term solution may be found in the use of fluidized bed boilers as replacements for existing boilers become necessary. The investment of hundreds of millions of dollars in direct coal burning is not warranted when an investment of similar magnitude could produce the technological ability to create clean fuels from coal. At a time when technological breakthroughs in producing clean fuels from coal are rapidly occurring, forcing Connecticut to burn dirty coal for the next 25 years is neither environmentally nor economically sound. We find nothing in the FEA orders has changed our long-standing position that coal conversion should not be ordered for Connecticut electric utilities nor for its industries."

Connecticut's situation is ironic in that the last of the state's generating plants had only completed the conversion from coal burning to the more convenient and less polluting oil burning operation about five years ago. Reversing this procedure at this stage will have several significant economic and environmental impacts.

The actual cost of the physical conversion to coal burning equipment and the installation of emission control equipment is only one economic factor. This capital cost is estimated by the utilities at over $300 million and by FEA at over $165 million. The operation of flue gas desulfurization systems and other emission control equipment will, in itself, add to total energy consumption and to the operating costs of our utilities, Pac said.

Any failure to stay within present levels of sulfur oxide and particulate emissions will result in the reduction or elimination of air quality margins, the Commissioner said, thereby eliminating the possibility of commercial and industrial growth in areas where economic activity may be most needed.

Environmentally, three major areas must be considered, he said. First, is the potential impact on air quality. Oil burned by Connecticut utilities, at this time, is well within the 0.5 percent sulfur content maximum set by State regulations. The average sulfur content of oil utilized in generating plants is actually below 0.4 percent. Conversion, therefore, will require equipment capable of reducing the emissions from coal with a sulfur content between 2.7 and 3.5 percent to the same level produced using low sulfur oil.

In addition to sulfur dioxide problems, the use of 10 percent ash coal has the potential of adding greatly to particulate emissions, he said. While particulate and sulfur oxide emissions may be controllable, coal burning will also generate nitrogen oxide emissions at a level well above that produced by oil burning facilities. Nitrogen oxides, which contribute to the formation of photochemical oxidants (smog) can only be slightly controlled by presently available flue gas desulfurization systems, according to Pac.

A second environmental consideration is possible water pollution generated in ash handling and disposal, the handling and disposal of sludge from wet scrubbers and runoff from coal piles.

Finally, the handling and disposal of the solid waste materials produced in the burning coal may well be the most serious environmental issue, the Commissioner said. The ash content of the low sulfur oil now used by Connecticut utilities is approximately 0.1 percent (by weight). The coal which would be burned under conversion orders has an approximate ash content of 10 percent. The increases in solid waste generation caused by coal conversion are estimated at roughly 35 million cubic feet annually, an overall increase of 12 to 15 percent for the State.

In addition to the energy consumed in handling and transporting this waste material and the water pollution potential, Pac said the solid waste problem would necessitate the location and acquisition of suitable disposal sites. Over 750 acre feet of disposal site volume would be required annually. Both from the standpoint of the limit of environmentally suitable sites and the cost of land this requirement would be extremely difficult if not prohibitive, he said.

DEP CITIZENS' BULLETIN

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Conservation Easements

A Neglected Tool

By Jack D. Gunther

Despite the favorable legal climate in Connecticut for the widespread use of Conservation Easements, a most useful device in preserving open spaces, they are sparsely employed due in large part to a lack of understanding by local tax assessors. Briefly, the Grantor of a Conservation Easement retains all rights of ownership to his land and simply covenants that no structures will be placed on the land during the period of the Easement - the land is committed to open space for the duration of the Easement.

Questions have been raised as to the propriety of granting a reduction in the assessed valuation of the land for real estate tax purposes during the term of the Easement, particularly without any requirement for public access and in the face of the crunch on public funds. The result is that Tax Assessors generally have been reluctant to exercise independent judgment in making realistic reductions in the assessed valuation of land when it becomes restricted in open space use, and this reluctance is clearly in conflict with State policy.

The farsighted law of the State of Connecticut (Public Act 490) was one of the first to recognize that open space land could not survive if taxed as a potential development site rather than on its "use" value as open space. In the Declaration of Policy, the Act provides that "it is in the public interest to encourage the preservation of open space land in order to conserve the State's natural resources and to provide for the welfare and happiness of the inhabitants of the State." The Statement of Policy further provides that it is in the public interest to prevent the forced conversion of open space land to more intensive uses as the result of economic pressures caused by the assessment of open space land for purposes of property taxation at values incompatible with its preservation as open space land.

Under the Act, once open space land is designated as "Open space" on the "Open Space Map" in the Town's Plan of Development, the owner becomes entitled to a reduction in the assessed value to reflect the open space use (a penalty is provided if the land is sold within a certain period). A schedule of suggested land "use-values" based on statewide averages was prepared by the "Land Use Value Review Committee" of the Connecticut Department of Agriculture to serve as guidelines for establishing the values of land classified under the Act as open space land, forest land, or agricultural land.

The officials of the Town of New Canaan are of the strong opinion that the interests of a Town are best served by granting a reduction in the assessed valuation of open space land when there is a firm agreement to hold the land as open space for a specified period of years. There are no uncertainties regarding taxes applicable to the property during the period of a Conservation Easement. Likewise, the Town does not incur any administrative costs if the Easement is granted to a local Land Trust.

The use of Conservation Easements is further encouraged by an amendment in the Tax Reform Act of 1976, which extends the charitable deduction to gifts of conservation easements of not less than 30 years duration. Under the amended provision (Section 170(f) of the Internal Revenue Code), a federal income tax deduction is allowed for the contribution to a Land Trust or municipality of such an easement, exclusively for "conservation purposes" which is defined as follows:

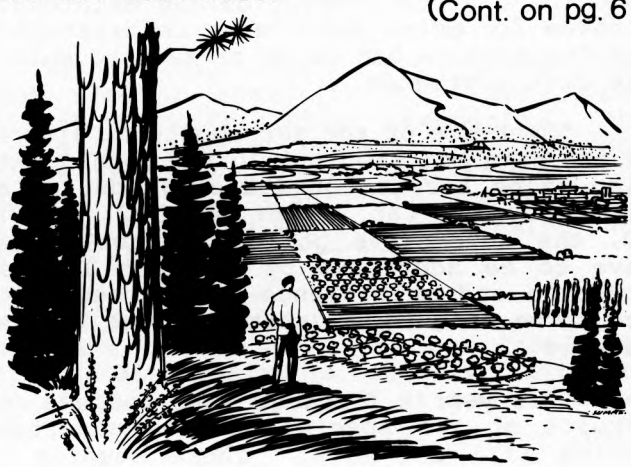
(i) the preservation of land areas for public outdoor recreation or education, or scenic enjoyment;

(ii) the preservation of historically important land areas or structures; or

(iii) the protection of natural environmental systems.

The favorable tax treatment of conservation easements of not less than 30 years duration should be particularly helpful for families with young children, whereby the family land can be maintained economically as open space and free from development until the children have reached a mature age. At that time, the children can decide what is in their best interests to do with the land in the light of then current conditions. However, in the meantime, the open space has been held.

(Cont. on pg. 6)



1976 Air Quality

No worse, but not much better

The annual review of Connecticut's air quality has produced "disappointing results," according to DEP Commissioner Stanley J. Pac. "We're disappointed," he said, "not because it has gotten worse, but because it hasn't gotten substantially better than it was last year."

He said pollutant data collected at permanent DEP air monitoring stations throughout the state indicated little improvement in Connecticut's air quality during the past year. For example, there have been no significant changes detected in the levels of suspended particulates, ozone, nitrogen dioxide (NO_2), sulfur dioxide (SO_2) and carbon monoxide (CO).

"Fortunately, sulfur dioxide (SO_2) and nitrogen dioxide (NO_2) levels remained within the federal air quality standards set to protect public health," Pac said, "and, in fact, for both pollutants we measured no violations of either the primary health standard or the secondary standard which is set to protect property and vegetation from damage.

"Unfortunately ozone (photochemical oxidant) and suspended particulate levels frequently exceeded the health standard and carbon monoxide levels exceeded the 8 hour national health standard in five urban areas," he said. The carbon monoxide and ozone figures were particularly disappointing to Pac.

"Our review of the past several years indicates there has been no significant change in CO levels, despite the fact that federal new car emission standards have gone into effect.

"Although it is still too soon to draw any conclusions from these figures, they do seem to indicate that technology alone will not solve Connecticut's auto emission pollution problem, and they lend support to the need for a state inspection and maintenance program for motor vehicles. Unfortunately, the legislature has twice refused to authorize such a program.

"Over-use of the automobile is also one of the main contributors to the consistently high ozone levels found around most of our cities during the summer months. As with CO, the automotive pollution problem will have to be addressed by programs like inspection and maintenance if any reductions are to be made in the state's ozone levels," he said.

This year's findings also include the results of two special studies undertaken during 1975 and 1976. These studies involved the monitoring of asbestos levels and an examination of the impact on Connecticut's air quality of wind-driven transport of particulate matter from the New York-New Jersey region.

The asbestos monitoring phase of the study demonstrated that asbestos emissions from vehicle brake lining decomposition is a significant source of airborne asbestos fibers. An analysis of collected data indicated that asbestos fiber levels at monitoring sites adjacent to toll plazas were second only to those located near industrial users of asbestos. It is hoped that these data can be used at some future time to establish an ambient air quality standard for asbestos emissions when sufficient standard-setting research conclusions are available.

The findings of the special study on the transport of total suspended particulates (TSP) was inconclusive. Wind-driven transport of ozone from other states has already been implicated as an important, but not the only, cause of Connecticut's repeated automotive smog violations. The air monitoring staff felt a similar phenomenon might be at work with respect to particulates.

Although a statistical analysis of TSP readings for the years 1971 through 1975 indicated that higher concentrations of particulates were found on days when the general air mass flow was southwesterly (from the direction of New York and New Jersey), the air monitoring staff believes that meteorological conditions had an equally significant impact on this increase. While they strongly recommend that a regional TSP strategy be formulated to reduce the transport of suspended particulates into Connecticut, they also believe that further studies are necessary to gain a better understanding of the mechanics of the transport of suspended particulates and the reason measured levels are increasing.

The air monitoring network used to gather the air quality data consists of 125 pollutant monitors at 57 monitoring locations, including an IBM System 7 computer and 12 telemetered monitoring sites. Data from the 12 telemetered sites are transmitted from the monitoring sites via telephone lines to the System 7 unit located in the DEP Hartford office. A complete description of all permanent air monitoring sites operated by DEP in 1976 is available from:

Department of Environmental Protection
Air Compliance Unit
State Office Building
Hartford, Connecticut 06115

Shepaug Qualifies as Scenic River

The Federal Bureau of Outdoor Recreation (BOR) has confirmed in a preliminary draft report that the Shepaug River is eligible for inclusion in the National Wild and Scenic Rivers Program as a scenic river. The river segments determined to be eligible are below Shepaug Reservoir in Warren to where the river enters Lake Lillinonah in Roxbury, and its tributary Bantam River, up to Morris Hill Road in Litchfield.

To qualify as a scenic area under the National Wild and Scenic River program a river must be free of impoundments with shorelines or watersheds still largely primitive and shorelines largely undeveloped but accessible in places by road. According to BOR the Shepaug River meets this criteria. In its findings BOR noted also that the water quality, recreation potential, and general aesthetics of the Shepaug River and its tributaries are all very high.

Management Alternatives

Having found that segments of the Shepaug and Bantam Rivers qualify for inclusion in the National Wild and Scenic Rivers System, the next important step is to identify a way to protect those values which cause the river to qualify. The way to protect the river's values consists primarily of finding a governmental agency to assume responsibility for managing the river corridor under Wild and Scenic River status, and developing a comprehensive plan to guide that agency in its efforts, to this end public hearings are now being held in various northwest Connecticut towns.

There are several administrative arrangements which could be effective in protecting the Shepaug River:

1. Local Management
2. State Management
3. Combined State/Local Management
4. Federal Management

Any of the first three alternatives would require that (a) the Connecticut Legislature officially recognize the Shepaug as a scenic river; (b) the Governor request that the Federal Secretary of the Interior add the Shepaug to the National System; and (c) the Secretary determine that all Federal requirements are met.

The report suggests that Federal management of the river is not likely in that this alternative is "usually limited to rivers which flow through or near federal land."

(Cont. on next page.)

The report also clearly points out that if a State or local management of the river is to be recommended, the towns and/or the State will have to prepare a comprehensive management plan. Criteria for preparing such a plan are generally stated and include precisely defining the river lands corridor, identifying means to preserve the river land and water quality, and identifying means by which the general public will be given opportunities to enjoy the river.

Editor's Note

The Wild and Scenic Rivers Act, P.L. 90-542, was approved on October 2, 1968. As stated by the Congress of the United States in that Act:

> It is hereby declared to be the policy of the United States that certain selected rivers of the Nation, which with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

In 1975, the Act was amended to designate the Shepaug River for study as a potential addition to the national system. The Act requires a determination as to whether the Shepaug should be included in the national system, and if so, recommendations pertaining to the administration and management of the river and its immediate environment.

The study of the Shepaug River was initiated in May of 1976, with lead responsibility assigned to the Bureau of Outdoor Recreation. Since much information must be obtained and diverse points of views sought for studies of this nature, a field study team was formed. Contributing members include the Fish & Wildlife Service, the National Park Service, The Environmental Protection Agency, The Army Corps of Engineers, the Federal Power Commission, the U.S. Forest Service, the U.S. Geological Survey, the Soil Conservation Service, the New England River Basins Commission, the Connecticut Department of Environmental Protection, the Litchfield County Conservation District, the Northwest Connecticut Regional Planning Agency, and the Litchfield Hills Regional Planning Agency. Other organizations and individuals have contributed additional valuable information.

Easements (Cont. from pg. 3)

It must be recognized that outright gifts of land, or gifts of Conservation Easements, to a local Land Trust are the most economical means by which a Community may preserve open spaces. No cash outlays (tax dollars) are required by the Town and no administrative costs are incurred. The reductions in real estate taxes are the same whether the open space land or Easement is held by the Town or by the Land Trust. While a gift of open space land or an Easement reduces the value of the Grand List, open spaces invariably add value to the Community by maintaining environmental quality, and promoting orderly growth which has a restraining influence on future increases in real estate taxes arising from rapid development. It must always be kept in mind that open spaces do not require any municipal services which require tax dollars.

In the face of rapidly diminishing open space land, all Tax Assessors in the State of Connecticut are urged to favorably consider Conservation Easements and to establish appropriate and realistic real estate tax benefits for the grantor.

A word of caution, however, Conservation Easements must not be used indiscriminately with the possibility of creating unjustified tax benefits. In New Canaan if the Land Trust decides to accept an Easement after consulting the Tax Assessor, the matter is referred to the New Canaan Conservation Commissioner for review.

* * *

Jack D. Gunther is President of the New Canaan Land Conservation Trust and Chairman of the New Canaan Conservation Commission

News from the:

208

Areawide Waste Treatment Management Planning Board

209 Court Street Middletown, Connecticut 06457

By Mark Possidento, 208 Administrator

Groundwater

In the 18th century life may have been more difficult but it certainly was much simpler than it is today. Water, for example, was plentiful and of good quality, so nobody worried about it. There were fewer people. Houses were spaced far apart and water and solid wastes were disposed of with no particular concern except for one: "out of sight - out of mind."

Today life is not so simple and our water bodies reflect it. With the United States' population well over 200 million and current water consumption over 387 billion gallons daily, the use of water for domestic, industrial and commercial needs is as diverse as human endeavor itself. But, the simple fact is: as water consumption increases, so do the problems that affect our waters.

Much is being done to restore and preserve our rivers, ponds and streams so that good quality surface waters will be available to meet the needs of the Nation. However, one source which is commonly taken for granted may also be in jeopardy. That is groundwater.

Groundwater is of special interest to Connecticut. It provides more than 8% of the total water used in the State and, in certain instances, is the primary source of water supply. The following Table illustrates groundwater use in Connecticut.

Groundwater Use In Conn (1975)

Category (Use)	Amount of Groundwater Withdrawn (Gal. per/day)	Percent Groundwater of Total (Ground & Surface) Withdrawn for each use.
Public Supply	34,200,000	10.6
Rural		
Domestic	49,842,000	99.9
Livestock	475,000	15.6
Irrigation	410,000	9.5
Thermoelectric		
Cooling	0	0
Other	300,000	7.5
Industrial	30,800,000	9.7
All Uses Total	116,030,000	8.2

(Figures do not include saline water.)

As the chart indicates groundwater is critical to meeting many of the state's water supply needs. Rural Domestic water supply, for example, relies solely on groundwater. Yet recent investigations have discovered that many of our groundwater supplies are already contaminated or threatened with contamination. Hundreds of cases of contaminated groundwater have been reported from all parts of the State and in water from every type of aquifer (a geological formation containing water)--stratified drift, till, sedimentory bedrock and crystalline bedrock.

The Connecticut 208 Program realizes the need to protect our groundwater and will be conducting various studies during the next two years to address this important issue. The studies to be undertaken will be divided into two areas of investigation: inventory--to determine the extent of groundwater contamination; and implementation--to institute necessary controls for the restoration and preservation of this invaluable natural resource.

Inventory

The inventory phase, will be conducted Statewide by the U.S. Geological Survey under contract with the 208 Program. Specific work elements to be performed are:

1. To identify areas where groundwater is threatened or already contaminated. Specific attention is being given to leachate from sanitary landfills, septage disposal areas, industrial discharges to groundwater, major sources of petroleum leakages, salt water encroachment, agricultural practices, and road salt applications.

2. To identify areas of potential water supply.

3. To define programs for the detailed identification and delineation of drainage areas affected by contamination problems.

4. To identify and quantify flow regimens and recommended locations for monitoring wells.

(Cont. on next page)

Preliminary outputs of this study which will be of interest are:

A. Groundwater Favorability Map for the entire state. (scale 1:125,000) June, 1977

B. Map showing major aquifers and sites of known or probable groundwater contamination. (scale 1:125,000) Sept., 1977

Implementation

Implementation is to be addressed by the Housatonic Valley Council of Elected Officials, Litchfield Hills Regional Planning Agency and the Southeastern Regional Planning Agency for their respective areas only. Funding limitations preclude a Statewide approach. However, the results of the studies for these three areas will have application to the remainder of the State.

From the information provided by the USGS inventory and other existing information, each RPA will investigate the types of land-use near major groundwater aquifers. Where the existing use of land cannot insure the long term protection of that aquifer, recommendations will be made and controls implemented to eliminate conflicting land-uses. Early outputs of the study will be:

A. Report: "Land Use Impact on Groundwater" Sept., 1977

B. Report: "Analysis of Existing Federal State Local and Regional Controls for the Protection of Groundwater" April, 1978

If you are interested in more information regarding Groundwater Studies of the Connecticut 208 Program, please contact us.

Editor's Note: The Connecticut 208 Program is a federally funded planning program directed towards the investigation of non-point sources of pollution to the States water. The Groundwater Studies discussed above are just one area of the program. If you would like to know more about other areas of the 208 Process please contact the 208 Central Office, tel: 347-3700.

Trailside Botanizing

by G. Winston Carter

HIGH BUSH BLUEBERRY
(Vaccinium corymbosum)

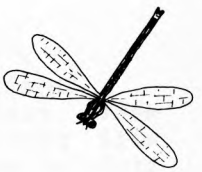
The small white or sometimes faintly pink, bell-like flowers of the high bush blueberry are often overlooked. It is only when one observes this flower at close range that one becomes aware of its delicate beauty. These flowers appear in small clusters between May and June. The fruit develop from July through August. Its berries may grow to 1/2 or more inches in diameter. The shrub itself grows to a height of three feet to over twelve feet, and is usually found on wet acid soil in swamps and thickets.

This plant is one of a large complex group of plants that belongs to the heath family. They frequently resemble one another and many hybridize. High bush blueberry and huckleberry are two related plants in this family that may grow side by side and lead to confusion in identification because at first glance they look very much alike. Their leaves are somewhat similar in color and shape but huckleberry leaves have yellow resinous dots on at least one side of their leaves....usually the under surface. These can be seen with a hand lens.

It is difficult to tell the difference between these two groups of plants on the basis of fruit color. An observation of the inside of the berry is more reliable. Blueberries contain many small seeds while huckleberries usually have ten seed-like nutlets, each containing a single seed.

Many cultivated varieties of blueberry have been developed from the wild high bush blueberry and its fruit is eaten by many species of game birds, song birds and mammals, while rabbits and deer find it an important plant on which to browse.

Nature Notes



written and illustrated
by
Penni Sharp

Your June Environment

June: *Mountain laurel in bloom...swallows hunting insects in the evening sky...painted turtles sunning themselves...raccoons on nighttime forays...herons and egrets on the nest...maple leaf viburnum in flower...buttercups...wild strawberries...summer solstice.*

Exploring a Pond

A warm, sunny June day can provide one with an excellent opportunity to explore a unique community, a fresh water pond. Technically, a pond is a body of water, usually smaller than a lake and shallow enough to permit the growth of rooted plants continuously along the bottom. If undisturbed and allowed to develop naturally, a pond becomes a rich environment supporting a great variety of organisms.

Successive Stages in the Development of a Pond

A young pond, at its earliest stages, is clear and free of vegetation. Gradually floating plants and clumps of pond weeds appear. Emergent shoreline plants invade the edges of the pond. The increased plant life provides food and cover for many animal species which begin to congregate in and around the pond. Over a long period of time, the pond may actually disappear. Vegetation along the shore may encroach further into the pond each year. The submerged and floating plants die off and sink to the bottom, making the pond shallower over time. The pond may become reduced in size and may eventually be converted to a marsh. If trees appear, the area becomes a swamp and finally a meadow.

Survival in a Pond

All the living components of a pond depend in some way upon one another and upon the water of the pond to live and reproduce. The plants are the producers of the pond community. Especially important are phytoplankton, the many microscopic plants that float or drift in the pond. By a process known as photosynthesis, these small plants manufacture food, in the form of sugar, from carbon dioxide, water, and nutrients, using the energy from the sun. Some of this energy is captured in the molecules of sugar and is thus made available to organisms that feed upon the phytoplankton.

Oxygen, necessary for the survival of nearly all living things, is released as a by-product of the photosynthetic process. For land animals, which receive their oxygen from the air, the supply of oxygen remains relatively constant. The situation for water animals is somewhat different, however, as the amount of oxygen dissolved in the water varies a great deal and is dependent upon many factors, including temperature, wind velocity and photosynthesis of phytoplankton and rooted green plants. Pond animals are usually able to adjust to the normal fluctuations of the level of oxygen, however drastic reductions in oxygen levels may be fatal.

The Food Web in a Pond

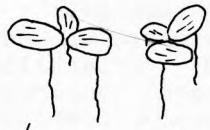
The green plants serve a key role in the food web of a pond. As previously stated, they capture energy directly from the sun. Animals that feed upon plants, herbivores, receive their energy from the plants. Herbivores are, in turn, eaten by carnivores, or meat-eating animals. Small carnivores may be fed upon by larger carnivores. Those animals and plants that die are acted upon first by scavengers and then by the decomposers. These latter organisms, bacteria and fungi, change organic material into inorganic nutrients which may be used again by the plants. The food web in a pond is extremely complex, and the preceding description is a simplified example of what actually takes place.

Plants and Animals to Look For

In exploring a pond, some simple equipment, readily made from household items, will prove useful. A kitchen strainer, tightly attached to an old broom handle makes a good device for scooping along the bottom. A dip net can be made by attaching a cloth bag (muslin preferred) around a wire, bent in the shape of a hoop. Large glass jars, such as mayonnaise jars, make good sample containers.

Below are but a few of the many plants and animals associated with a pond. For help in identifying others, the following field guides are recommended:

Pond Life, a Golden Guide - Reid/Zim
The New Field Book of
Freshwater Life - Elsie B. Klots



Lemna minor

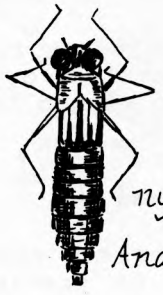
Lesser duck weed is a common floating pond plant. In mid summer, it may cover a small pond giving it a greenish appearance.

Sagittaria latifolia

Arrowhead grows at the edge of ponds. Also called duck potato. The thick tubers are a favorite food of waterfowl. The flowers are white, 3 petaled and grow in whorls of 3.

Hesperocorixa

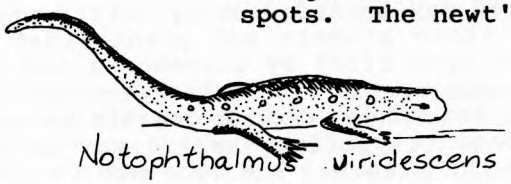
Water boatman row through the water by means of their long hind legs which are flattened and fringed for swimming. They feed on algae and decaying matter.



nymph

Anax junius

Dragonfly nymphs live underwater and are voracious carnivores feeding on insects, tadpoles, and occasionally small fish. When ready to transform, they crawl out of the pond onto vegetation, cast their skin and emerge as winged adults.



Notophthalmus viridescens

The Red spotted Newt spends most of its life in water, but the sub adult stage of its life is spent on land. In its land phase it is bright orange with red spots, while in water it is yellow and green with red spots. The newt's food includes leeches, worms, insects and tadpoles.

Our Mistake

In the last Nature Notes column, we mistakenly said, "In Connecticut, most residents live no more than two miles from a salt marsh." It should have said two hours (by car). The mistake was ours not the writer's.

Department of Planning and Energy Policy:

P.E.P. TALK

by Tom Richard Strumolo

Considering Transportation Alternatives

For a country founded on the precepts of freedom, individuality, and the guarantees of basic human rights and opportunities, the automobile is the perfect obsession. Parked in that driveway, smiling chrome and beckoning seductively with several tons of guzzling comforts is...the American Automobile.

Turn one small key and you have power and speed and coordination; you are the athlete you hoped to be; you are the hard-nosed executive you'd like to be; you are the Romeo you could never be without four on the floor, power ashtrays and a back seat the size of a Neptune water bed.

And you'll be gosh-danged, dad-blurted if you'll give that baby up or even share it once a week with somebody until they mount 16mm cannons on top of the gas pumps and New England is at full-scale war with Texas.

What about public transportation? Or carpools? For most Connecticut citizens, these travel alternatives are for the other guy. To many an automobile driver, concerns for air, land, non-renewable energy resources, and future generations appear to mean as much as compassion does to a mugger.

The comfort, convenience, and potential for expression that the gas guzzler offers seem to so overwhelm other considerations that in fact big car sales are up and new monthly gas consumption records are being set all over the country. While industry, commerce, and residences show marked energy savings in the past three years, transportation (gasoline) showed conservation briefly and is now back on the road to complete natural resource destruction.

If mass transportation is really not viable because of lack of availability and consumer resistance, what is the answer to our intensifying transportation problems? To review the overall goals of transportation planning, let's consider these:

1. Reduced demand for non-renewable energy sources
2. Healthy, natural environment
3. Convenience, freedom, self-expression

To meet these ends, several general policies can be adopted:

1. Discourage gasoline waste (building more highways encourages gasoline wants, etc.

2. Test all fuel alternatives immediately (In the 40 mile round trip range, electric vehicles may already be practical; alcohol has the ability to reduce emissions when mixed with gas, and can be distilled right here in Connecticut)

3. Assume people will actually fight for their cars, and design smaller but fast, attractive machines. (And then find a fuel that can be "grown" like methane or methanol and convert the engines or electric plants)

Those sincerely concerned about energy waste and the environment should perhaps consider alternatives other than public transportation--just for a little while--because transit systems take a lot of time and money to build. Assume people won't give up their freedom they believe the auto gives them, and try to come up with new and cleaner individual means of transport for the short run. This is a halfway measure, to be sure, but is certainly worth exploring.

Meanwhile, educating the public to the fact that we face a real energy crisis is a pressing need. We have to be creative about telling the sad story of the American transportation system to the high schools whose parking lots are full of cars. It is a story of disrespect for precious natural resources and one that could have a very disruptive end.

Ironically, it is not a story of freedom, after all; it is one of belonging lock, stock and barrel to a machine. Face it, our cars own us, they drive us around and force us into paying enormous prices, economic and environmental, for small pleasures. It seems more like servitude than freedom, with that big boss man under the hood calling the shots.

Indirect Source Program to be Modified

On May 19, 1977, Commissioner Stanley Pac accepted and endorsed the recommendations of a DEP Hearing Examiner concerning repeal of the Department's regulations on indirect sources of air pollution for projects other than highways or airports.

On March 14, 1977, a public hearing was held to consider whether existing regulations concerning indirect sources of air pollution (19-508-100, Regulations of Connecticut State Agencies) should be amended; modified; suspended, in whole or in part; repealed; or left unchanged. After reviewing the testimony and other material submitted, Hearing Examiner Louis J. Proulx, Jr. submittted a series of recommendations calling for repeal of the bulk of the indirect source regulations and a shift of staff resources to full development and implementation of the State Transportation Control Plan.

Mr. Proulx urged that consideration be given to re-adoption of an indirect source program when quicker and simpler methods of predicting carbon monoxide concentrations are available and when the Transportation Control Plan is developed to the point that the complementary role of the indirect source program can be more clearly defined. At such time as the plan is reinstated, the Hearing Examiner recommended that the ten-year limit on the life of an operating permit be deleted.

In his findings, Mr. Proulx said, "Benefits from operation of the Indirect Sources Program as presently constituted do not warrant its costs in terms of DEP manpower and resources, and adverse economic impacts....Repeal of the Regulation (19-508-100) as applied to non-highway/airport projects is the most appropriate action that might be taken at this time....Retention of the Regulation (19-508-100) with reference to highways and airports is warranted in view of the positive technical support of such action, absence of specifics or credibly adverse testimony and the probable favorable effect the program should have in furthering the purposes of NEPA and CEPA." (National and Connecticut Environmental Policy Act)

Land, Air and Water Society, Inc. and CBET, Inc. have been recognized as parties to the proceeding. Oral testimony was presented by 53 individuals at the March 14th hearing which was attented by more than five hundred people. Letters, postcards and other documents numbering in the hundreds also became a part of the hearing record.

The regulation changes are subject to approval by the Attorney General and the Legislative Regulation Review Committee. In addition, because they were originally adopted as federal, as well as state, regulations, a second hearing will be required to comply with federal requirements. A hearing will be scheduled in July to meet the federal procedures, and the proposed repeal of the federal regulations will have to be approved by the Administrator of the U.S. Environmental Protection Agency.

Case Studies in Land Conservation Offered

John E. Hibbard, secretary-forester of the Connecticut Forest and Park Association, Inc., announced today that the Association, in cooperation with the New England Natural Resources Center, is offering a series of six "Case Studies in Land Conservation" to the public and interested organizations.

The studies were produced during 1976 and 1977 by the New England Natural Resources Center to provide detailed background information about several conservation issues of interest to persons in the New England region.

The documented studies of specific situations are written by qualified professionals in the conservation field. The series includes the following individual studies: "Partial Development Finances, Open Space Preservation in Lincoln, Massachusetts" by Charles T. Gallagher, "Bargain Purchase of Land by an Exempt Organization: A Vermont Case Study" by Davis Cherington, "Conservation Easements Preserve an Island on the Maine Coast" by Benjamin R. Emory, "Little Egg Harbor, New Jersey, A Non-Profit Organization, The United States Government, and an Insurance Company Rescue a Marsh" by Richard L. Erdmann, and "The Liberalized Lobbying Rules of the 1976 Tax Reform Act and Conservation Organizations" by Kingsbury Browne.

Hibbard said that the studies will be of particular interest to land trusts and conservation commissions.

The Association is offering the set of six studies through the mail at a cost of $6.00 including postage and handling; individual copies are offered at a cost of $1.25 including postage and handling. Inquiries and orders may be sent to the Connecticut Forest and Park Association, Inc., P.O. Box 389, East Hartford, Connecticut 06108.

coastal area management
71 capitol avenue hartford, conn. 06115

CAM NEWS

CAM Holds Workshops on Management Program

Want to learn more about coastal area management and express your opinion on what Connecticut's management program should be? Then come to CAM's public workshops!

The Coastal Area Management Program (CAM) staff and Advisory Board have proposed recommendations on how the management program will occur, who will carry it out, where the jurisdictional boundary will be, and how to determine what areas will receive special attention. But these are recommendations, not decisions. Come to the workshops to learn more about the options and recommendations, to ask questions, and to give us your recommendations. The management program cannot reflect your interests unless you let us know what they are!

Those attending the workshops will be given a handbook which explains the management proposals and includes a fill-out-and-return questionnaire. The handbook, which will be completed in mid-June, can also be obtained by contacting the CAM office.

Reports discussing the federal Coastal Zone Management Act's requirements, the advantages and disadvantages of various options for the program, and the reasons for CAM's recommendations are also available.

Our address is: 71 Capitol Avenue, Hartford, Connecticut 06115. Phone 566-7404.

Workshop Schedule

HARTFORD AREA June 30, 7:30 p.m.
University of Connecticut Health Center
Green Auditorium
Rt. 4 (Farmington Avenue)
Farmington

STAMFORD June 23, 8:00 p.m.
University of Connecticut Extension Branch
Multi-purpose Room, New Library Building
Scofield Town Road

NORWALK June 28, 8:00 p.m.
Roton Middle School Auditorium
Highland Avenue

BRIDGEPORT July 6, 7:30 p.m.
City Hall
Common Council Chambers
45 Lyon Terrace

NEW HAVEN July 7, 7:30 p.m.
Conn. Agricultural Experiment Station
Jones Auditorium
123 Huntington Street

GUILFORD July 13, 7:30 p.m.
Adams Middle School
Route 77

OLD SAYBROOK July 12, 7:30 p.m.
Old Saybrook Senior High School Auditorium
1111 Boston Post Road

EAST LYME July 14, 7:30 p.m.
Town Hall
Lower Level Conference Room
108 Pennsylvania Avenue

GROTON July 20, 7:30 p.m.
Municipal Building
295 Meridian Street

Permits Issued

May, 1977

Air Compliance

May 27
A & M Piping Contractors
Permit to operate a Cleaver-Brooks 125 H.P. Boiler at Conco Surgical Products in the Town of Bridgeport

May 27
Savoy Laundry Inc.
Permit to construct a 200 H.P. Cleaver-Brooks Boiler at Savoy Laundry in the Town of Stratford

May 27
American Cyanamid Co.
Permit to operate a 250 H.P. North American Boiler at American Cyanamid Co., Shippas Plant in the Town of Stamford

May 27
City of Bridgeport
Permit to operate two Cleaver-Brooks CB 150 Boilers at Dinan Memorial Center in Bridgeport

Water Compliance

May 5
Magnani & McCormick, Inc.
Permit, with conditions, to discharge 2,000 gallons per day of photographic processing waste and sanitary waste to the sanitary sewer system in the Town of Enfield.

May 5
Small Lot Plating Co.
Permit, with conditions, to discharge treated zinc plating wastewaters to the Naugatuck River Watershed in the City of Waterbury

May 5
Red Lobster Inns of America, Inc.
Permit, with conditions, to discharge 9,000 gallons per day of treated domestic sewage to the Silver Brook Watershed in the Town of Orange

May 5
Robert B. Gegetskas
Permit, with conditions, to discharge 480 gallons per day of treated domestic sewage to the Salmon River Watershed in the Town of Granby

May 5
Pfizer, Inc.
Permit, with conditions, to discharge sanitary sewage to the city of Groton sanitary sewerage system

May 17
American Cyanamid Co.
Permit, with conditions, to discharge neutralized metal finishing wastewaters to the Still River Watershed in the City of Danbury

May 17
Superior Steel Ball Co.
Permit, with conditions, to discharge wastewaters from metal finishing operations to the Connecticut River Watershed in the City of Hartford

May 17
Fafnir Bearing Co.
Permit, with conditions, to discharge metal finishing wastes and oil bearing wastewaters to the Connecticut River Watershed in the Town of Newington

May 19
Top Hill Apartments
Permit, with conditions, to discharge 16,000 gallons per day of treated domestic sewage to the Gillette Brook Watershed in the Town of Colchester

May 23
Photronic Labs, Inc.
Permit, with conditions, to discharge photographic processing and chemical etching wastewaters following pretreatment to the City of Danbury municipal sewerage system

May 24
Southern Auto Sales
Permit, with conditions, to discharge car washwater and sanitary sewage to the Connecticut River Watershed in the Town of East Windsor

Water Resources

May 20
William Milo Barnum Associates
Permit, with conditions, to place structures riverward of established stream encroachment lines for the Bantam River in the Town of Greenwich

May 23
Indian Harbor Yacht Club
Permit to install and maintain a 24' x 30' dock on piles in Greenwich Harbor in the Town of Greenwich

May 23
Town of Groton
Permit to retain and maintain 400 cubic yards of fill in Bennet's Cove, in Mystic Harbor, Town of Groton

university of connecticut
INSTITUTE OF WATER RESOURCES

Research on Improved Sewage Treatment

Adding powdered carbon periodically to secondary sewage treatment plants can reduce the costs of treatment and improve the quality of the treated water, according to a recent Institute-funded research project.

Drs. H.E. Klei and D.W. Sundstrom of the Chemical Engineering Department at UConn conducted the research. The laboratory experiments were conducted in a model "activated sludge reactor"--the part of a conventional secondary sewage treatment plant in which microorganisms decompose the organic wastes in industrial and municipal sewage. Activated sludge is the term used to describe the suspension of microorganisms which convert the wastes into carbon dioxide, water, by-products and more microorganisms.

In recent years researchers have investigated whether the addition of powdered activated carbon to the activated sludge process improves the quality of the water leaving the plant termed "effluent." These studies have shown that the addition of the carbon improves the removal of organic matter, toxic substances, non-biodegradable compounds and color bodies. It produces more uniformity in the water quality of the effluent under varying input loads. It also reduces foam by pulling out detergents, and it improves the settling of solids.

Since present control methods have limited ability to handle increased organic loadings or to moderate the effects of materials toxic to the microorganisms that make the secondary treatment plant work, the addition of activated carbon provides a new and promising technique to control effluent conditions. Fortunately, the plant conversion necessary to allow addition of carbon requires a minimal capital investment, consisting primarily of a mixing tank and a pump for feeding the carbon.

In the experiments performed by Drs. Klei and Sundstrom an activated sludge reactor was subjected to both toxic and nontoxic feed upsets and powdered carbon was applied to control these experimentally created upsets. The amount and rate of carbon added was varied to evaluate the effectiveness of this upset control strategy for maintaining effluent quality.

In most of the work done by other investigators, the powdered carbon has been added to the sludge reactor continuously, but the UConn researchers believe that for many municipal and industrial treatment plants, continuous addition may be unnecessary. Therefore, a major objective of their research was to show that the carbon could be added periodically to control the upsets that occur as a result of unexpected changes in the characteristics of the sewage entering the plant.

If periodic additions proved effective, money could be saved in the operation of sewage treatment plants, because the consumption of activated carbon would be decreased.

The lab experiments performed by the UConn researchers involved the addition of glucose, phenols and powdered carbon to a model sludge reactor. The glucose, a common sugar, simulated an organic waste material. The phenols, a complex chemical group in the hydrocarbon family frequently found in industrial wastes, are toxic to the microorganisms in a sludge reactor. The microorganisms used in the experiments were obtained from a local waste treatment plant.

In the first part of the study, the glucose and some associated nutrients were fed into the model treatment plant at a steady rate, but the carbon was fed in for only an interval of time to determine the effect of starting and stopping the addition of the carbon. Analysis of the effluent showed that the concentrations of total organic carbon and glucose decreased when carbon was added.

In additional experiments, the amount of glucose was changed by "step inputs"--instantaneous changes in concentrations--to simulate changes in the volumes and concentrations of wastes entering a treatment plant. Analysis of the effluent showed that the concentrations of total organic carbon and glucose in the effluent decreased following the addition of carbon. However, when glucose levels were stepped up and carbon was not continuously added to the input, the total organic carbon and glucose concentrations increased to a maximum and then gradually declined to a new steady state. The researchers acknowledge that the increase in these concentrations in the effluent is a drawback of the intermittent addition of carbon approach, but they suggest that, if the activated sludge were recycled back to the sludge reactor, the residual carbon in the recycled material might minimize the increases.

Cont. on next page.

In the next phase of the experiments, step and impulse inputs of phenol were added to the sludge reactor. As indicated, step inputs change the feed concentration to a new level instantaneously. Impulse inputs, on the other hand, add a new substance to the reactor at an instant in time without changing the steady feed concentrations.

In this case phenols were added instantaneously to the sludge reactor which was decomposing the glucose. The addition of phenols could be expected to decrease the efficiency of the reactor by killing off the microorganisms. The addition of powdered activated carbon, however, permitted continued reactor operation at phenol levels that otherwise would have stopped the decomposition process. The researchers therefore conclude that the periodic addition of powdered carbon would provide a promising control method for handling severe upsets of absorbable toxic materials in activated sludge reactors. This technique, they suggest would provide more efficient effluent conditions at a relatively low cost.

1st in 100 Years

Salmon Caught by Angler

Fifteen year old Darek Ostrowski of New Britain is a very lucky young man. On May 4th, while fishing for trout below Leesville Dam on the Salmon River in East Hampton, Darek caught a 6 pound, 29 inch Atlantic salmon. Connecticut officials are excited about this particular fish. Darek's salmon is the first one caught on rod and reel in Connecticut in the last 100 years!!!

DEP fishery biologist Peter Minta confirmed that Ostrowski's catch was indeed an Atlantic salmon. "No doubt about it. It's incredible," Minta said.

The last salmon "caught" in the region was last fall in a trap at a fishway in Holyoke, Massachusetts. Over the past years other salmon have been taken by commercial fishermen, or found dead.

According to Cole Wilde, Chief of DEP's Fish and Water Life Unit, in the past eight years DEP and other wildlife agencies have conducted an intensive program to establish salmon in the Northeast. "This year more than 100,000 smolts--young salmon about seven inches long--were stocked in the main stems of the Connecticut and Farmington Rivers," Wilde said.

At one time common in Connecticut, salmon became extinct by 1810 when dams were built on rivers, blocking the salmon's run to spawning grounds.

Bringing back the salmon has been a major project in Connecticut for more than 100 years. The Connecticut Fish Commission--the predecessor of the DEP--was founded in 1867 for the sole purpose of reestablishing the salmon.

Now with conclusive proof that salmon are back in Connecticut waters, fishermen are requested to report all large, silver salmon-like fish caught in the Connecticut River, Salmon River below Leesville Dam and the Farmington River below Rainbow Dam to the DEP by calling the Marine Region, Waterford (telephone 443-0166), the Fish and Water Life Unit, Hartford (telephone 566-2287) or any biologist or conservation officer listed in the Hunting and Fishing Abstract. A reward is offerred.

DEP citizens' bulletin

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